

# Suicides in Alaska: Firearms and Alcohol

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**Abstract:** A manual review of death certificates and autopsy records identified 195 suicides in Alaska during 1983–84. Native males, 20–24 years old, had the highest rate of suicide (257 per 100,000 person-years). Gunshot wounds caused 76 per cent of all suicide deaths; 79 per cent of Native and 48 per cent of White suicides had detectable levels of blood alcohol. Suicide by firearms was weakly associated with blood alcohol levels above 100 mg/dl (odds ratio 1.3, 95 per cent confidence interval 1.11–1.47). (*Am J Public Health* 1988;78:179–180.)

## Introduction

Several studies have documented an association between alcohol use and suicide,<sup>1–3</sup> and the increasing rate of suicide by firearms is well known.<sup>4</sup> This study describes the epidemiology of suicides in Alaska with particular attention to the problem in Natives and the relation between acute alcohol intoxication and the use of firearms in suicide.

## Methods

The case definition of suicide was any death occurring in Alaska during calendar years 1983 and 1984 that was determined by local reporting officials to be suicide and indicated as such on the death certificate by listing suicide as either the underlying cause or the manner of death.

To identify cases, all death certificate files for the years 1983 and 1984 were manually searched and reports of all autopsies performed on suicide victims were reviewed.

Population estimates were obtained from the Alaska Department of Labor.<sup>5</sup> Age-adjusted rates were calculated by the direct method, using the 1940 US population as the standard. Years of potential life lost (YPLL) were calculated for suicide victims less than 65 years of age by subtracting the age at death (in years) from 65. Multiple logistic regression analysis was performed by the method of least squares, using the Statistical Analysis System (SAS).

## Results

Of 195 deaths meeting our case definition of suicide, two were Blacks, 128 were Whites, and 65 were Natives. Alaska Natives, while comprising only 14 per cent of the population, represented 33 per cent of the state's suicides.

The age-, race-, and sex-specific suicide rates in Alaska for 1983–84 are shown in Figure 1. Alaska Native males in the 20–24 year age group accounted for 20 suicides, a rate of 257 per 100,000 person-years.

The age-adjusted suicide rate was 21.0 per 100,000 person-years. Among Natives it was 42.9, 2.2 times the rate of 19.1 for Whites.

The number of years of potential life lost (YPLL) to suicide before age 65 in Alaska during 1983–84 was 6,407. The average annual rate of YPLL statewide was 629 per 100,000 population. For Natives, the average was 1,684 YPLL per

100,000 population, 3.4 times the average for Whites, which was 499.0 YPLL per 100,000.

Seventy-three per cent of the Native population and 33 per cent of Whites lived in communities of less than 5,000 population. The suicide rate for Natives was almost twice as high in rural areas, while the rate for Whites was slightly higher in urban areas greater than 5,000 population (Table 1).

Of 195 suicides, 149 (76 per cent) were the result of gunshot wounds, accounting for the majority of male (78 per cent) and female (67 per cent), Native (78 per cent) and White (75 per cent) suicides. Of 187 suicides for which information was available, 120 (64 per cent) occurred at home.

Blood alcohol levels at autopsy were available for 169 (87 per cent) of the 195 suicides. Of these, 99 (59 per cent) had detectable levels of blood alcohol, and 53 (31 per cent) had levels greater than 100 mg/dl. Of 57 Native suicides tested, 45 (79 per cent) had detectable levels of blood alcohol, compared to 53 (48 per cent) of the 110 suicides in Whites tested. Also, the proportion of blood alcohol levels exceeding 100 mg/dl was much higher among Native (54 per cent) than among White (20 per cent) suicides tested. Analysis by multiple logistic regression (Table 2) revealed that suicides with blood alcohol levels greater than or equal to 100 mg/dl were more likely than others to have died as the result of gunshot wounds (estimated odds ratio 1.3, 95% CI: 1.11–1.45), controlling for the effects of age, race, and sex—none of which was strongly predictive.

## Discussion

During the past 50 years, Alaska Natives have gone from a majority population to a minority, from a subsistence

TABLE 1—Crude Suicide Rates per 100,000 per Year by Race and Residence, Alaska, 1983–84

Race	Residence		
	Urban*	Rural	Total
Native	27.4	50.5	44.2
White	15.2	14.4	14.9
All Races	15.9	24.3	19.1

\* >5,000 population

TABLE 2—Regression of Firearm Suicide by Race, Sex, Age, and Blood Alcohol Level, Alaska, 1983–84† (N = 168)

Regressor	Regression Coefficient
Intercept	0.727*
Race	–0.043
Sex	–0.120
Age	0.004
Blood alcohol ≥100 mg/dl	0.245†‡

R<sup>2</sup> = 0.096

\*Coefficient is at least twice its standard error.

†Estimated odds ratio = 1.3, 95% CI: 1.11–1.47.

‡Age was a continuous variable. Race, sex, and blood alcohol were dummy variables:

Native = 1, non-Native = 0

Male = 1, female = 0

Blood alcohol ≥100 mg/dl = 1

Blood alcohol <100 mg/dl = 0

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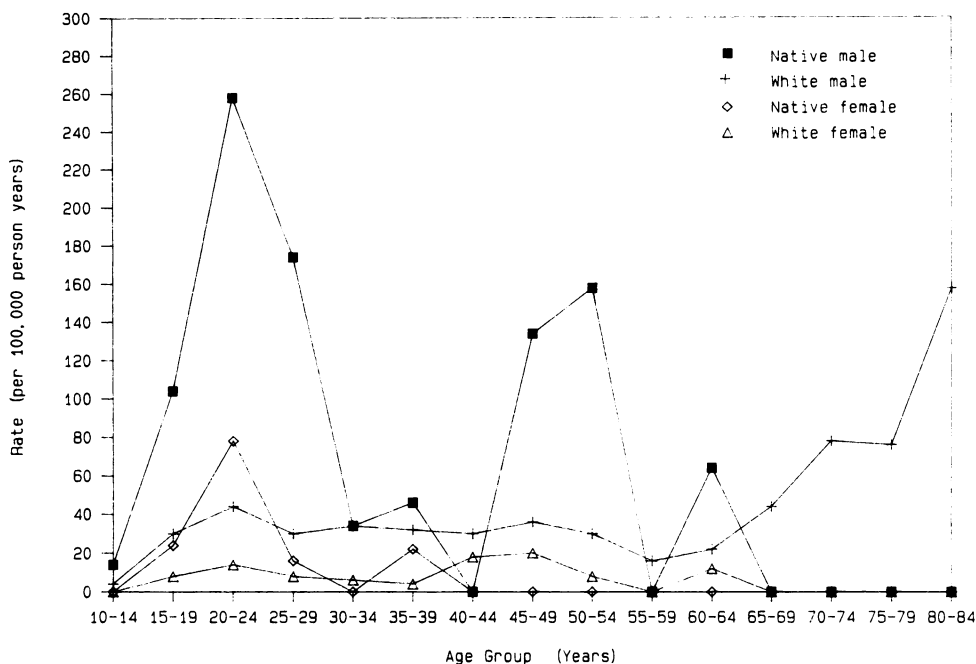


FIGURE 1—Average Annual Rate of Suicide by Age, Race, and Sex, Alaska 1983-84

economy to a cash economy, and through extreme cycles of economic boom and bust. These and many other social, cultural, and economic changes have resulted in profound changes in family roles and community function; traditional cultural values and support systems also have been severely undermined.<sup>6,7</sup>

The age-adjusted suicide rate for Alaskans during 1983-84 was almost twice the rate observed for the United States in 1980.<sup>8</sup> For Native Alaskans, it was four times the national rate, with six times the 1983 national average of years of potential life lost to suicide.<sup>9</sup> The proportions of both suicide by firearms and suicide associated with alcohol were also much higher in Alaska, especially for Native suicides, than in other populations.<sup>8,10,11</sup>

The association between acute alcohol intoxication and firearms, although mild, lends concern to the availability of firearms as a factor in the increasing rate of suicide in young people observed in Alaska and elsewhere.<sup>4,6,12</sup>

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